

Low Voltage Testing With The 74101 Attenuator.

The 74101 attenuator is designed for use with the 7410 when the application or requirement needs a voltage lower than that available from the 7410. The ranges provided by the attenuator are 0.001V, 0.01V, 0.1V and 1.0V. When using the 74101 the following steps should be followed:

1. Remove the link connections, if installed, between the AC Output and AC Sense terminals on the 7410. Termination of the sense and output signals are made inside the 74101.
2. Orient and plug the 74101 into the AC Output, AC Sense terminals of the 7410.
3. Select the attenuator range of interest and make an initial AC rms measurement with an AC voltmeter. Note the initial nominal value.
4. Execute the step calibration program with the dc voltmeter connected to the attenuator setting to be calibrated.
5. Select the menu option - Modify Parameters - if the setup options need to be changed.
6. Perform the step calibration as described in the 7410 manual.

NOTE

The output resistance of the 74101 attenuator is 0.1 Ω , 1 Ω , 10 Ω and 100 Ω for the output range settings of 0.001V, 0.01V, 0.1V and 1V respectively. For accurate DC measurements at these levels it is important to ensure that the system DC voltmeter has a negligible DC offset voltage. The DC voltmeter manual should be consulted for instructions on techniques for nulling the input offset voltages.

7. The calculated rms value reported should be noted.
8. Remove the DC voltmeter and attach the AC load to the attenuator setting just calibrated.
9. Set the 7410 EXT CLK ON/OFF switch to the OFF position to enable the 7410 output signal with the internal oscillator.

APPENDIX B 74101 ATTENUATOR

GENERAL SPECIFICATIONS

Operating Temperature	0 to +70	°C
Storage Temperature	-10 to +125	°C
Operating Humidity	< 50	%RH
Storage Humidity	15 to 80	%RH
Power Dissipation	100	mW
Temperature Coefficient	±50	ppm fs/°C
Dimensions	10.8 X 7.5 X 6.6	cm
Depth X Width X Height	4.25 X 2.94 X 2.60	inches
Weight	0.25	kg
	0.55	lb

OUTPUT UNCERTAINTY

Uncertainty : ±2% all ranges at DC.

Output Range	** Uncertainty Relative to DC (±ppm)							
	Frequency (Hz)							
	0.1	1.0	10	100	1k	10k	20k	40k
7V	10	10	10	10	10	15	20	60
1V	15	15	15	15	30	60	100	#
0.1V	20	20	20	20	60	100	#	#
0.01V	30	30	30	30	60	#	#	#
#0.001V	100	100	150	200	#	#	#	#

** When used with the 7410, add these uncertainties to the appropriate 7410 output uncertainty.

Empirical data only.